Set Attributes

INTRODUCTION

Part attributes control the appearance and behavior of parts. Much of the power of EnSight derives from the broad range of attributes available and the ease with which they can be changed. Attributes are grouped into three classes:

Creation	Creation attributes are unique for each (non-model) part type (*e.g.* the isovalue of an isosurface). Most (if not all) of the creation attributes for a part are accessible in the Quick Interaction area after double-clicking the part in the Main Parts List.
General	Visibility Susceptibility to auxiliary clipping Reference Frame Response to change in time (active or frozen) Symmetry options Viewport visibility Coloration (by variable or constant color) Hidden surface toggle Hidden line toggle Shading type (flat, Gouraud, smooth) Transparency Lighting (diffuse, shininess, highlight intensity)
Node, Element, and Line	Node, line, element visibility toggles Node type (dot, cross, sphere) Node scale (constant or variable) Node detail (for spheres) Node and element label toggle Element-line width Element-line style (solid, dotted, or dot-dash) Element representation on client (full, border, 3D border/2D full, feature angle, bounding box, not loaded) Element shrink factor
Displacement	Displacement variable Displacement scaling factor
IJK Axis Display	IJK Axis visibility IJK Axis scale value

Most (if not all) of the Creation attributes for non-model parts can be edited in the Quick Interaction area by double-clicking on the part in the Main Parts list. Most display attributes (such as color and visibility) can be controlled via the icons in Part mode. If required, the Feature Detail Editor can be opened for complete access to all attributes. See **How To Use the Feature Detail Editors** for more information.

Since Creation attributes are specific to each (non-model) part type, they are not covered here. Look in the How To article for the specific part type for details on those particular Creation attributes.

This article is divided into the following sections:

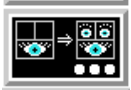
Basic Operation

Part Mode Attribute Icons

The Part mode icons can be used to quickly set attributes for parts. To use these controls:

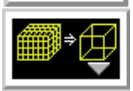
1. **Select the desired part(s) in the Main Parts list.**
2. **Click Part in the Mode Selection area.**
3. **Click to set the desired attribute:**

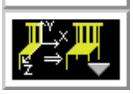

Part Visibility


Visibility Per Viewport


Line Width

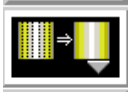

Opacity / Transparency

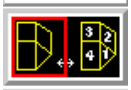

Element Visual Representation


Visual Symmetry


Shaded Surface


Hidden Line

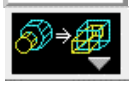

Shading Type


Element Labeling


Node Labeling


Auxiliary Clipping


Node Representation


Fast Display Representation

General Attributes

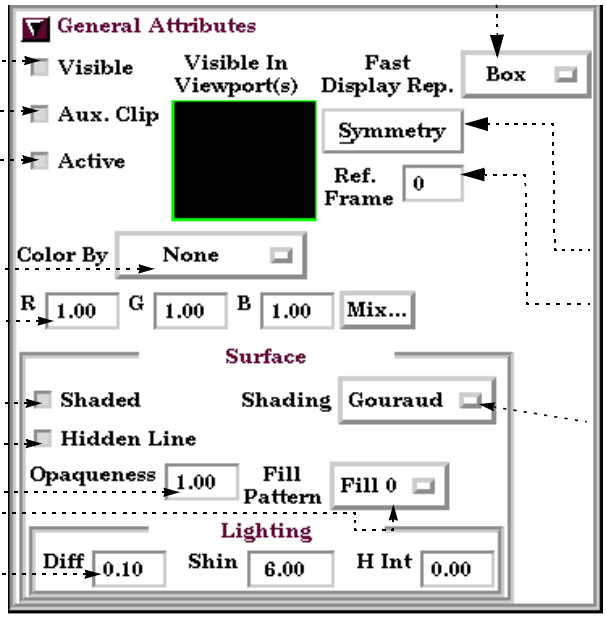
The General Attributes section in the Feature Detail Editor duplicates many of the controls available in Part mode. To set attributes using the General Attributes section:

1. Select Edit > Part Feature Detail Editors > *part type*.

2. In the parts list at the top of the Feature Detail Editor dialog, select the desired part(s).

By default, any changes you make to attributes will take effect immediately. If you wish to "batch" a series of changes, select Edit > Immediate Modification (be sure to use the Edit menu in the Feature Detail Editor dialog) to toggle this setting off. When toggled off, a button at the bottom of the dialog becomes active: Apply Changes. Click it when you are ready to apply a set of changes.

3. Set the desired attribute(s):



Toggle part visibility

Toggle **auxiliary clipping** on/off

Toggle whether the client's portion of the part changes if the current time step changes

Set **color** by constant or color by variable

Set the part color if constant

Toggle part hidden surface

Toggle part hidden line

Set part **transparency** as "true" or with a fill pattern

Set part shading parameters:

- Diff: diffuse shading – the amount of light that a surface reflects. 0 is none and 1 is full.
- Shin: Degree of shininess – 0 is dull and 100 is very shiny.
- H Int: Degree of highlight intensity – 0 is none and 1 is full.

Set part detail representation (according to **Global Viewing Detail Mode**):

- Box: part is represented as bounding box.
- Elements: part is represented according to Element Representation
- Points: part is represented as a point cloud

Set part graphical **symmetry**

Set part **reference frame**

Set shading type:

- Flat: color and shading are constant across elements
- Gouraud: color and shading vary linearly across elements
- Smooth: color and shading calculated based on surface normal interpolated across elements to simulate a smooth surface.

See Also

Set Global Viewing Parameters

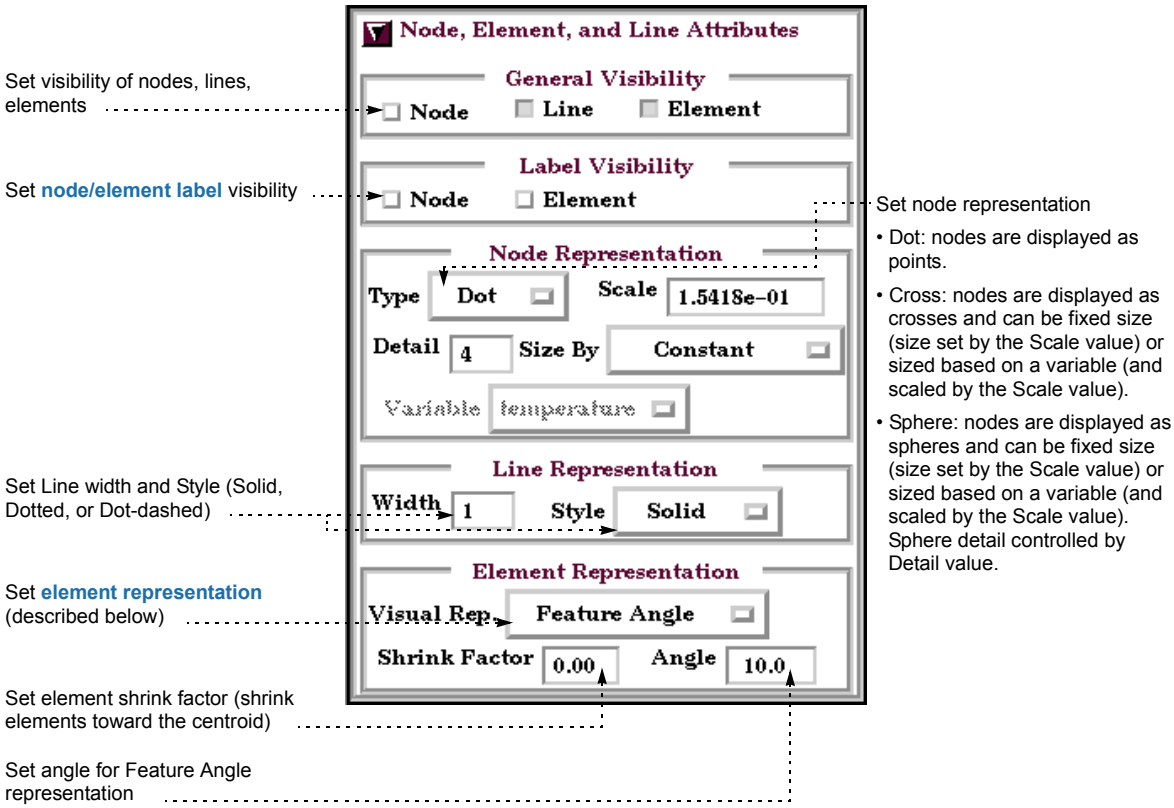
Node, Element, and Line Attributes

Node, element, and line attributes control how a part's nodes and elements are displayed. Nodes can be displayed as dots, crosses, or spheres. If displayed as crosses or spheres, the radius can be set by the value of a variable at that node. To set attributes using the Node, Element, and Line Attributes section:

1. Select Edit > Part Feature Detail Editors > *part type*.

2. In the parts list at the top of the Feature Detail Editor dialog, select the desired part(s).
By default, any changes you make to attributes will take effect immediately. If you wish to "batch" a series of changes, select Edit > Immediate Modification (be sure to use the Edit menu in the Feature Detail Editor dialog) to toggle this setting off. When toggled off, a button at the bottom of the dialog becomes active: Apply Changes. Click it when you are ready to apply a set of changes.

3. Set the desired attribute(s):

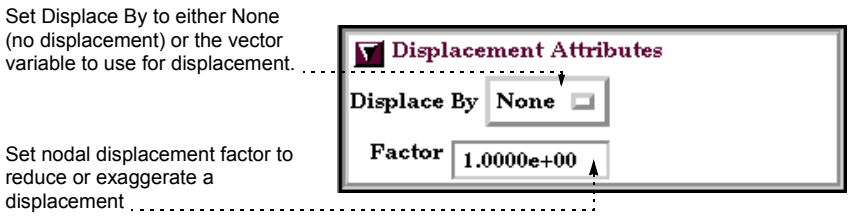


EnSight provides six representation modes for parts (see also **How To Change Visual Representation**):

Full	Every face and edge of every element is displayed.
Border	Only unshared faces (for 3D parts) or unshared edges (for 2D parts) are displayed.
3D Border, 2D Full	Display 3D parts in Border representation; display 2D parts in Full representation. This is the default representation for all parts.
Feature Angle	Only those edges joining faces in the Border representation for which the angle between the faces is less than some threshold are displayed. Feature Angle typically extracts the topological features of interest in a model.
Non Visual	No visual representation exists on the client. It is often useful to use Non Visual as the representation for 3D computational domain parts – provided you also have some sort of shell part to display the outer surface.
Bounding Box	Displays a bounding box surrounding (and in place of) the nodes and elements.

Displacement Attributes

In structural mechanics simulations, a common output variable is a set of vectors representing the movement or displacement of geometry. Each displacement vector specifies a translation of a node from its original position (an offset). EnSight can display and animate these displacements to help visualize the relative motion of geometry. To set Displacement attributes (see also **How To Display Displacements**):



IJK Axis Display Attributes

Model Parts and clips (because they can be structured parts) will have these attributes available. These attributes will only be applicable to structured parts.

See Also

Introduction to Part Creation

User Manual: **Part Attributes**